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*Educational Research Bulletin*

# Salaries of Inexperienced Teachers

EARL W. ANDERSON
AND
ESTHER M. STUBBS[1]

HIGH-SCHOOL principals each year send to the Ohio State Department of Education the names, subject assignments, and salaries of all their teachers. From these reports for the year 1928-29, which covered 90 percent of all public junior and senior high schools of the state, the data of this study were compiled. Inexperienced teachers were defined as those who had had no regular teaching experience previous to September, 1928.

The median salary for all inexperienced teachers in the state for the year was $1,292. The mean salary—the average—was $1,399. Table I shows the distribution of the salaries. The high salaries for men included two positions in manual training, and one in Smith-Hughes agriculture. One of the manual-training men had a major in mechanical engineering, and possibly industrial experience. One city in Ohio started a teacher of ceramics at $3,000. Industrial experience probably justified this salary which was the upper limit of the range of the salaries received by men, at the other extremity was a salary of $840.

[1] Mr. Anderson, head of Appointments Division; Miss Stubbs, Assistant in Psychology, Ohio State University.

The two highest salaries among women were in home economics. These probably were Smith-Hughes positions running for twelve months and necessitating the use of a car. The range of women's salaries was from $840 to $1,800.

TABLE I

THE DISTRIBUTION OF SALARIES OF INEXPERIENCED HIGH-SCHOOL TEACHERS

| | Women | Men | Total |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| $ 800-$ 899..... | 2 | 1 | 3 |
| 900- 999..... | 6 | 2 | 8 |
| 1,000- 1,099..... | 12 | 3 | 15 |
| 1,110- 1,199..... | 56 | 11 | 67 |
| 1,200- 1,299..... | 190 | 34 | 224 |
| 1,300- 1,399..... | 91 | 39 | 130 |
| 1,400- 1,499..... | 23 | 36 | 59 |
| 1,500- 1,599..... | 8 | 20 | 28 |
| 1,600- 1,699..... | 5 | 2 | 7 |
| 1,700- 1,799..... | 2 | 4 | 6 |
| 1,800- 1,899..... | 2 | 8 | 10 |
| 1,900- 1,999..... | ..... | 2 | 2 |
| 2,000- 2,099..... | ..... | 13 | 13 |
| 2,100- 2,199..... | ..... | 5 | 5 |
| 2,200- 2,299..... | ..... | 3 | 3 |
| 3,000- 3,099..... | ..... | 1 | 1 |
| Total..... | 397 | 199 | 596 |
| Median..... | $1,265 | $1,425 | $1,292 |
| Mean..... | $1,325.80 | $1,541.71 | $1,398.99 |

The second highest salary, received by a man—omitting for the moment that of the ceramics teacher just mentioned—was approximately $500 more than the highest salary paid to

a woman, the average man receiving $140 more than the average woman. The median man's salary was approximately $235 more than the salary for the median women. Two women and one man taught in the high schools of Ohio in 1928-29 for $840.

Sixty percent of beginning teachers received between $1,200 and $1,399, 38 percent between $1,200 and $1,299. Approximately half the women, 48 percent, received between $1,200 and $1,299; 23 percent were one step higher, while 14 percent were one step lower. Eighty-five percent received salaries ranging from $1,100 to $1,399. The salaries of the men spread over a much wider range than did those of the women. One-fifth were between $1,300 and $1,399, while about one-sixth were one step above and below respectively.

The salaries varied somewhat with the specific subjects taught. Those facts are shown in the parallel sections of Table II for men and women. All persons teaching one or more classes of a subject are counted in that subject's interval. Considerable overlapping, therefore, occurs in this table, for the salary of either the man or woman who teaches three subjects appears under each subject. Physical education is usually taught just two or three days a week, and sometimes means merely supervision at recess. A teacher is not included in physical education unless he teaches two classes a day.

TABLE II

SALARIES OF INEXPERIENCED MEN TEACHING ONE OR MORE CLASSES IN SPECIFIED SUBJECT

| | MEN | | | | | WOMEN | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. of Cases | Maximum | Minimum | Median | Mean | No. of Cases | Maximum | Minimum | Median | Mean |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| Agriculture | 38 | $2,220 | $ 840 | $1,650 | $1,704 | 6 | $1,300 | $1,100 | $1,233 | $1,260 |
| Art | 3 | 2,100 | 1,120 | 1,450 | 1,540 | 3 | 1,200 | 1,200 | 1,250 | 1,250 |
| Chemistry | 19 | 1,800 | 1,200 | 1,400 | 1,450 | 3 | 1,300 | 1,200 | 1,261 | 1,283 |
| Ceramics | 1 | 3,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Commercial subjects | 11 | 1,600 | 840 | 1,270 | 1,345 | 29 | 1,500 | 900 | 1,275 | 1,310 |
| English | 43 | 1,500 | 1,000 | 1,350 | 1,359 | 231 | 1,600 | 840 | 1,255 | 1,273 |
| French | 3 | 1,400 | 1,200 | 1,350 | 1,400 | 45 | 1,600 | 1,120 | 1,280 | 1,349 |
| General science | 41 | 1,700 | 1,100 | 1,390 | 1,446 | 26 | 1,500 | 900 | 1,242 | 1,285 |
| Geography | 29 | 2,000 | 1,000 | 1,280 | 1,320 | 51 | 1,400 | 1,070 | 1,259 | 1,316 |
| History | 65 | 1,800 | 1,000 | 1,363 | 1,438 | 102 | 1,500 | 840 | 1,255 | 1,292 |
| Industrial arts | 49 | 2,240 | 840 | 1,456 | 1,575 | ..... | ..... | ..... | ..... | ..... |
| Home economics | ..... | ..... | ..... | ..... | ..... | 112 | 1,800 | 840 | 1,251 | 1,317 |
| Latin | 11 | 1,440 | 1,120 | 1,264 | 1,327 | 93 | 1,400 | 945 | 1,249 | 1,295 |
| Mathematics | 67 | 1,600 | 840 | 1,376 | 1,446 | 78 | 1,600 | 900 | 1,264 | 1,320 |
| Music | 1 | 1,600 | ..... | ..... | ..... | 35 | 1,500 | 900 | 1,258 | 1,311 |
| Physical education | 19 | 2,100 | 1,200 | 1,650 | 1,673 | 21 | 1,700 | 1,080 | 1,286 | 1,314 |
| Physics | 11 | 1,800 | 1,200 | 1,467 | 1,555 | ..... | ..... | ..... | ..... | ..... |
| Science | 49 | 1,800 | 1,000 | 1,350 | 1,415 | 58 | 1,800[a] | 1,000 | 1,275 | 1,320 |
| Spanish | 1 | 1,300 | ..... | ..... | ..... | 5 | 1,300 | 1,200 | 1,267 | 1,233 |
| Social science | 47 | 1,800 | 1,000 | 1,395 | 1,458 | 61 | 1,400 | 1,050 | 1,242 | 1,285 |
| Civics | 29 | 1,800 | 1,000 | 1,335 | 1,435 | 43 | 1,400 | 1,050 | 1,260 | 1,280 |
| Economics | 7 | 1,600 | 1,300 | 1,450 | 1,478 | 10 | 1,300 | 1,100 | 1,260 | 1,260 |
| Sociology | 13 | 1,600 | 1,200 | 1,335 | 1,446 | 17 | 1,300 | 1,070 | 1,245 | 1,230 |

[a] A major in home economics who teaches more courses in home economics than in science.

The greatest salary range—$840 to $2,220—was in agriculture. The person receiving $840 had not majored in agriculture, but he taught three classes in it besides one class in mathematics, one in industrial education, and one in typing and shorthand.

The high maximum salary for art teachers was paid in a large city high school. Since this man had no academic degree, professional experience probably accounted for this salary. The two other men received $1,300.

Salaries for men teachers of physical education, though fairly well scattered over the range, were high in the cities. Five persons received between $1,400 and $1,499, and three persons between $1,600 and $1,699.

In industrial arts the distribution of which is characterized by high maximum and mean salaries, eight men received between $1,200 and $1,299, eight between $1,400 and $1,499, and eight between $1,600 and $1,699.

The caption, social science, means one class or more in civics, economics, sociology, or problems of democracy. The maximum salary received was $1,800. The person who received this salary was a physical-education major and social-science minor who was teaching physical education, mathematics, and one class in civics. The median salaries for men teaching commercial subjects, Latin, and geography were lower than those in other subjects.

The salaries in commercial subjects, English, geography, history, Latin, and science fell most often between $1,200 and $1,299. Those of chemistry, general science, and mathematics were grouped most frequently between $1,300 and $1,399; those in physical education, physics, and economics between $1,400 and $1,499; and those in agriculture between $2,000 and $2,099. In social science there appeared two intervals which were equally frequent—$1,200 to $1,299 and $1,400 to $1,499—while the same fact appeared in sociology, but the intervals were $1,200 to $1,299 and $1,300 to $1,399. Three such intervals appeared in industrial arts—$1,200 to $1,299, $1,400 to $1,499, and $1,600 to $1,699. As was previously mentioned, eight salaries fell within each of these groups, thereby accounting for the salaries of twenty-four of the forty-nine teachers.

Table II shows a surprisingly small variation in median salaries for women. The highest salary—one in physical education—is only $53 more than the lowest—one in agriculture. This is less than one-seventh of the variation in men's salaries. There is, however, a difference of $600 in the maximum salaries paid women in various subjects.

Some home-economics teachers were the highest paid of all beginning women teachers. However, 45 percent of them received between $1,200 and $1,299. More than half of the Latin, music, social-science, history, geography, and English teachers received between $1,200 and $1,299. The numbers of women teaching art, chemistry, Spanish, and agriculture were so small that the median and average salaries are not reliable (see Column 7). The range within which women's salaries most frequently fell for all the subjects listed in Table II was $1,200 to $1,299 except commercial subjects which fell in equivalent

groups between $1,200 and $1,299 and $1,300 and $1,399.

Since the salaries of those teaching each subject are affected by the combinations taught with it, the salaries paid to those who taught single subjects exclusively are shown in Table III. No inexperienced men were found who taught chemistry, French, geography, Latin, physics, or Spanish alone. No inexperienced women taught agriculture, Latin, physics, Spanish, or social science exclusively.

The median is of most interest to teachers since it represents the salary persons of average ability will likely receive. It is the middle case within the distribution of salaries in each classification. The mean on the other hand concerns administrators, since it represents the average cost of instruction per teacher in each field. A few high salaries often raise the mean salary without substantially affecting the median. The means in agriculture and physical education show that these subjects respectively cost the most for instruction. Combinations including geography cost the least. The median column for men indicates that men combining Latin with other subjects are likely to get the lowest salaries.

As regards women teachers, medians show that teachers of average ability are likely to receive the best salaries in combinations including physical education and the poorest in agriculture. The means indicate French (or combinations with French) to be the most expensive to the state, and sociology (or combinations) the least.

Table III, when compared with Table II, shows that in general those teaching one subject exclusively were better paid than those teaching combinations of subjects. Salaries for combinations of academic and special subjects were higher than salaries in academic fields and lower than those in special fields.

TABLE III

SALARIES OF INEXPERIENCED MEN TEACHING ONE SUBJECT ALONE

| | MEN | | | | | WOMEN | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. of Cases | Maximum | Minimum | Median | Mean | No. of Cases | Maximum | Minimum | Median | Mean |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| Agriculture | 14 | $2,220 | $1,125 | $2,056 | $1,936 | ..... | ..... | ..... | ..... | ..... |
| Art | 1 | 2,100 | ..... | ..... | ..... | 1 | $1,200 | ..... | ..... | ..... |
| Commercial subjects | 2 | 1,500 | 1,100 | ..... | 1,300 | 8 | 1,300 | $ 945 | $1,283 | $1,150 |
| English | 5 | 1,500 | 1,300 | 1,400 | 1,380 | 26 | 1,500 | 1,200 | 1,312 | 1,346 |
| French | ..... | ..... | ..... | ..... | ..... | 2 | 1,300 | 1,300 | ..... | ..... |
| Geography | ..... | ..... | ..... | ..... | ..... | 1 | 1,200 | ..... | ..... | ..... |
| General science | 1 | 1,600 | ..... | ..... | ..... | 1 | 1,500 | ..... | ..... | ..... |
| History | 2 | 1,710 | 1,700 | ..... | 1,705 | 4 | 1,400 | 1,000 | 1,250 | 1,225 |
| Industrial arts | 14 | 2,240 | 1,200 | 1,625 | 1,686 | ..... | ..... | ..... | ..... | ..... |
| Home economics | ..... | ..... | ..... | ..... | ..... | 20 | 1,800 | 840 | 1,300 | 1,380 |
| Mathematics | 4 | 1,600 | 1,300 | 1,450 | 1,425 | 4 | 1,400 | 1,200 | 1,300 | 1,275 |
| Music | 1 | 1,600 | ..... | ..... | ..... | 11 | 1,500 | 900 | 1,280 | 1,318 |
| Physical education | 8 | 2,100 | 1,400 | 1,900 | 1,775 | 6 | 1,700 | 1,200 | 1,400 | 1,775 |
| Science | 1 | 1,000 | ..... | ..... | ..... | 1 | 1,300 | ..... | ..... | ..... |
| Sociology | 2 | 1,400 | 1,300 | ..... | 1,350 | ..... | ..... | ..... | ..... | ..... |

A comparison of the salaries of men and women listed in Table II is made in Table IV. We see that men were not better paid in all subjects. The median and mean salaries of the men were with one exception higher than those of the women (see Columns 4 and 5). These measures of central tendency show the trend much better than do the extremes, since the maximum or minimum often represent the difference between one pair of salaries.

TABLE IV

DIFFERENCES IN SALARIES OF INEXPERIENCED MEN AND WOMEN

(In favor of men unless negative sign is used)

| | Maximum | Minimum | Median | Mean |
|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) |
| Agriculture | $ 900 | $-260 | $ 417 | $ 444 |
| Chemistry | 500 | 0 | 139 | 167 |
| Commercial subjects | 100 | - 60 | - 5 | 35 |
| English | -100 | 160 | 95 | 86 |
| French | -200 | 80 | 70 | 51 |
| General science | 200 | 200 | 148 | 161 |
| Geography | 600 | - 70 | 21 | 4 |
| History | 300 | 160 | 108 | 146 |
| Latin | 40 | 175 | 15 | 32 |
| Mathematics | 0 | - 60 | 112 | 126 |
| Physical education | 400 | 120 | 364 | 259 |
| Science | 0 | 0 | 75 | 95 |
| Social science | 400 | - 50 | 153 | 163 |
| Civics | 400 | - 50 | 75 | 155 |
| Economics | 300 | 200 | 190 | 218 |
| Sociology | 300 | 130 | 90 | 216 |

The greatest difference in the maximum occurs in French, and in this instance the highest paid person was teaching only one class in French. The woman receiving the next highest salary for teaching French received the same as the maximum salary for men teaching that subject.

In agriculture, where the men's salaries far surpassed the women's, only six women taught the subject, none having majored or minored in it, while in college, and none teaching it full time. In physical education where there was the next greatest difference most of the men coached the boys' athletic teams and in some cases the girls'.

The question often is asked, "Do those who secure state certificates obtain better positions than those teaching on local or county certificates?" The facts for inexperienced teachers in the county school systems are shown in Table V. Data were not obtainable for the city and exempted-village schools. The table shows the state certificates give an advantage to women of $45 in median and $400 in maximum salary. The highest maximum is paid men with state certificates, but the median for men is $30 in favor of those with county certificates. Industrial experience may account for this difference.

TABLE V

RELATION OF SALARY TO CERTIFICATES IN HIGH SCHOOLS IN COUNTY SYSTEMS

| | No. of Cases | Range | Median |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| MEN: | | | |
| State certificates | 284 | $840-$2,100 | $1,410 |
| County certificates | 48 | 900- 1,800 | 1,440 |
| WOMEN: | | | |
| State certificates | 120 | 840- 1,800 | 1,270 |
| County certificates | 30 | 840- 1,400 | 1,225 |

Special duties in fields of music, dramatics, public speaking, athletics, and business management often increase the salaries of teachers. These increases have little relation to the subjects taught. Such special duties are not listed in the report to the State Department. Hence, in many cases, the salaries paid to teachers of specific subjects are in part paid for duties other

than teaching. The portion of salaries for instance, paid to teachers of English because of special duties cannot be accurately estimated. When there are only a few cases, the influence of these special abilities may be considerable.

In conclusion, the median salary for all teachers was $1,292. The median for men was $160 above that for women and the maximum was $440 more. The lowest minimum salary for each sex was $840. Median salaries for men ran higher than those for women in all fields except commercial subjects. The difference in median salaries by subjects ran from $5 in favor of women in the commercial subjects to $417 in favor of the men in agriculture. In general, the subjects of agriculture, industrial arts, physical education, home economics, and art offered the best salaries although the salary most frequently paid women was practically the same in all subjects.

# Objective Tests at Different Ability Levels

ROBERT W. EDMISTON[1]

THE WRITER recently gave several tests in geography to two groups of high-school students. Those who composed the first group had failed in at least one high-school subject. The members of the second group—the so-called "normal" group—were a year in advance of those of the first in educational attainment. The correlations between the results of these tests appeared to be much lower for the less capable group. To obtain further data on this point the following more careful experimental testing was made.

Four different tests were made to cover the same material item by item. The modified essay test was given first so that no answers might be obtained from the other tests. Fifty objective questions were arranged in each of the three types—multiple-choice, true-false, and completion—covering the same items. Sample items of the modified essay test were:

With regard to mountains answer on the lines provided the following questions:

1. How are mountains formed?
2. What is the outstanding effect of mountains upon their inhabitants?
3. Give three occupations for which mountain regions are suited.
4. When are mountains better living places than plains?

An example of the multiple-choice test for corresponding material was:

Due to their isolation mountain people are—very healthy—very glad to have visitors—peculiar.

The corresponding true-false test read:

Mountains produce a superior people due to their isolation and favorable climate. .....

The form of the completion test was:

The most peculiar people of the United States are those inhabiting regions that are . . .

The objective tests were mimeographed on separate sheets. Each sheet comprised fifty questions—sixteen of the first type, seventeen of the second, and seventeen of the third. These tests were given immediately after the modified-essay test. A third

[1] Graduate fellow in School Administration, Ohio State University.

of each group was started on multiple-choice tests, a third on true-false, and a third on completion tests, in order to equalize any carrying over of information from one objective type to the other. The scores used were the number of "rights."

Table I gives the correlations of the different test scores with each other test for the numbers of each group. The average chronological age of the first group whose members had failed in at least one high-school subject was 202 months, that of the other group was 209 months. The average intelligence quotient of the first group on the Terman Group Test of Mental Ability (Form B) was 92, of the second was 102. The average high-school marks were 3.3 and 2.6 computed on a scheme in which the marks were 1, 2, 3, 4, and 5; 1 was high, 5 was low, and an average of 3 is necessary for promotion. The first group in the table is the retarded section, and the second group is the normal section. There were 32 cases in each group.

A comparison of the corresponding correlations for each group shows those of the normal group to be higher in each instance. The variation from the lowest to the highest correlation is .14 in the case of the normal and .43 in the case of the retarded group. In both cases the mark obtained from all three of the objective tests correlates higher with the modified essay type than with the marks of any single type of objective test. The varying correlations for the retarded group show the necessity of a more extensive testing to obtain a reliable rating of these pupils.

Ruch's records of experimental studies found in his recent book *The Objective or New-Type Examination* offer much data on the correlations between different types of objective tests.

TABLE I

CORRELATIONS BETWEEN THE DIFFERENT TYPES OF TEST

| | Modified Essay Test | True-False Test | Completion Test | Multiple-Choice Test | True-False, Completion, and Multiple-Choice Tests |
|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) |
| | First Group | | | | |
| Modified essay test | ..... | .51 | .64 | .70 | .74 |
| True-false test | .51 | ..... | .31 | .63 | ..... |
| Completion test | .64 | .31 | ..... | .70 | ..... |
| Multiple-choice test | .70 | .63 | .70 | ..... | ..... |
| Sum of true-false, completion, and multiple-choice tests | .74 | ..... | ..... | ..... | ..... |
| | Second Group | | | | |
| Modified essay test | ..... | .82 | .76 | .75 | .85 |
| True-false test | .82 | ..... | .75 | .71 | ..... |
| Completion test | .76 | .75 | ..... | .72 | ..... |
| Multiple-choice test | .75 | .71 | .72 | ..... | ..... |
| Sum of true-false completion, and multiple-choice tests | .85 | ..... | ..... | ..... | ..... |

There are no studies, with which the writer is familiar, similar enough to the one here given to allow a direct comparison.

CONCLUSION

This study seeks to discover whether the reliability and validity of tests vary in the cases of groups of different intelligence and achievements records. The data were derived from four types of tests including a rather unique type of modified essay test. The results show a lower reliability and validity for the tests scores of the group rated lower in intelligence and achievement.

## Delaware County News

A report of the twelve centralized and village schools maintaining first-grade high schools in Delaware County for the year 1928-29 shows an enrollment of 2,834 pupils, with 101 teachers. The high-school enrollment in Grades IX to XII ranges from 45 to 134; three high schools have less than 50 each. An enrollment of less than 20 pupils per teacher means small classes and expensive teaching. The salary budget is $133,505; the cost of instruction per capita, $47.11.

The following table shows the cost of the elementary schools per capita:

| | |
|---|---|
| Number of one-room schools in Delaware County | 25 |
| Number of pupils in the 25 one-room schools | 431 |
| Number of pupils per teacher | 17+ |
| Per capita cost of instruction per year | $49.10 |
| Number of elementary teachers in 10 centralized schools | 43 |
| Number of pupils taught by these 43 teachers | 1,632 |
| Number of pupils per teacher in centralized schools | 38 |
| Per capita cost of instruction in elementary grades of centralized schools per year | $25.23 |

The elementary teachers in the centralized schools have so many more pupils than the teachers in the one-room schools, that the cost of instruction per capita is about one-half—51 percent—of what it is in the one-room schools.

The next largest item of cost is the transportation of pupils. These 10 centralized schools spend $41,686 for the transportation of pupils. Considering two-thirds of this amount for elementary pupils, we have $27,791 as the cost of transporting 1,632 elementary pupils, or $17.03 per capita for transportation. When the cost of transportation, $17.03, is added to the teaching cost, $25.23, it makes a total cost for teaching and transportation of $42.26 per capita, which is $6.84 per pupil less than the teaching cost in the one-room schools without transportation. A few pupils are transported to our one-room schools, amounting to $4.26 for every pupil in the one-room schools. This, added to the $6.84 just mentioned, makes the cost $11.10 per pupil more than the corresponding cost in the centralized schools where most of the pupils are transported.

Uniform tests given in all elementary schools show that the instruction in the centralized schools is far more efficient than in the one-room schools. Better classification, fewer classes, longer periods for recitation, and better preparation on the part of the teacher secured almost double the efficiency of educational work in the centralized schools over that which we find in the one-room schools, and the teaching cost is about one-half as much per pupil.

H. T. MAIN
*Superintendent of Delaware County Schools*

## A Project in English Testing

IN September, 1926, we began our present system of building tests in English grammar at Audubon Junior High School. A detailed account of the method used was given in the article, "The Value of Building Tests in English Grammar," published in this Bulletin which was dated November 23, 1927. The grammar work is divided into six-weeks units. Building tests covering each unit were given to all sections. The results, shown on graphs, were placed in the hands of the English teachers. Thus each teacher knew at the end of each six weeks whether or not her sections were doing work that was up to the standard of their intelligence rating.

The pupils that entered Audubon as VII-B's in September, 1926, were IX-B's in September, 1928. In order that we might have some check upon the grade of work we had been doing with them, we gave in January Form 3 of the Pressey tests in grammar and sentence structure. As these are standardized tests, neither the material chosen in the tests nor the medians established for them were in any way connected with English work in Audubon or in Cleveland. None of the English teachers knew what tests were to be used, nor were they familiar with the Pressey tests before they were given.

The entire group took the two tests on January 11. Each set of papers was graded and checked by two English teachers. The students were arranged in groups according to their intelligence-test scores and the sections were numbered according to their intelligence rating from Section I, with a median probable rate of 130, to Section XII, with a median rate of 80. The probable learning rate of the entire groups falls slightly below normal.

Several facts regarding the results on the tests are worth mentioning. Audubon's median for the entire group is above the nation-wide medians on both tests. Section I, the group of brightest pupils, rates above twelfth-grade standing; in fact, only one person in the section rated as low as ninth grade. Sections II, III, and IV rate above tenth grade in grammar and above ninth in sentence structure, while only Section XII, a borderline section, goes below ninth-grade standard.

A diagnostic interpretation of the results by sentences has shown that our pupils are weak in the following phases of English grammar: Correct usage of adjectives and adverbs, agreement of subject and predicate verb when the verb precedes the subject, and agreement of pronouns with their antecedents when the antecedents are indefinite pronouns.

HELEN D. RUHLEN
*Cleveland*

* * *

An error was made in footnote 5 on page 270 of the article by R. L. Morton entitled, "An Evaluation of Arithmetic Teaching," in the last issue of the EDUCATIONAL RESEARCH BULLETIN. A detailed description of the teaching of fractions is found in Mr. Morton's book, *The Teaching of Arithmetic in the Intermediate Grades* pages 107-207, rather than in *The Teaching of Arithmetic in the Primary Grades* which is the reference given in the footnote.

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## The Psychological Congress

IT was altogether fitting to devote the opening meeting of the Ninth International Congress of Psychology to the theme, international understanding, for psychologists from England, France, Germany, Poland, Russia, Japan, China, and India had gathered with their American confrères as the guests of Yale University. For psychologists the scene of the Congress was, indeed, a happy choice, because few—if any other—universities provide similar opportunities for the scientific and concerted study of so many aspects of human nature. The unique organization for which Yale is famous, the Institute of Human Relations, combines the graduate departments of psychology and the social sciences, the child-development clinic, the comparative psycho-biological clinic, and research and clinical organizations for the study of mental hygiene and psychiatry.

The university proved a generous host. Students and learned men mingled in the democratic regimen of the quadrangles. One rubbed trays in Yale Commons with eminent psychologists of whom one had heard as an undergraduate and whom one revered as a mature student. The whisper went round "Oh, there is ———" — sometimes it was Pavlov, sometimes it was Claparède, sometimes Cattell. One listened earnestly to addresses in French or German given by Decroly, Lipmann, Stern, or Bühler even though there were great gaps in one's understanding of what they were all about. Papers by several American psychologists were continually discussed. "The Conflicts of Psychology" by Dr. Jastrow, Dr. Lashley's presidential address "Basic Neural Mechanisms in Behavior," and Knight Dunlap's surprising thesis concerning "Repetition in the Breaking of Habits" were on everyone's lips.

The programs afforded varieties for every taste. There were sections entitled general psychology and theoretical psychology; comparative psychology and animal behavior; physiological psychology, social psychology, and psychophysics. There were discussions of meaning and symbolism, memory and learning, motivation, aesthetics, and the nature of G. There were programs devoted to theory, to history, to methodology, and to statistics. Familiar topics—sensation and perception, the reflex, and eye-movements—found their places on the program; although one fears that the reflex will not again dare to lift its head in the assemblies of the mighty after Dr. Lashley's able attack upon the psychological pre-eminence of the reflex arc.

Persons of more practical turn found their ways to sections concerned with industrial psychology, legal psychology, personnel psychology, and the effect of drugs. Two sections were

devoted to educational psychology, one of which was called "Application of Psychology to the Methods of Teaching," while the interest in the papers given before the sections on Child Development was so lively that an additional section had to be arranged.

In the limited space at my command there can be no place for summaries of addresses, comments on particular programs, or descriptions of the splendor that is Yale. Any account of the Congress by one who shared its favors is not complete without some expression of appreciation to President Angell—himself a psychologist of note. At the open meeting he was pre-eminently a scholar; from the notebook of a colleague I have gleaned the phrase "the terrible futility of unmitigated hostilities" which was recorded during President Angell's address. On Monday evening he stood, an anxious host, with a stop watch in his hand checking the service at the cafeteria tables. No small part of the pleasure of the visitors attending the Ninth International Congress was due to the urbane hospitality of Dr. Angell.

J. H. M.

## New Appointments

Four new research assistants have been appointed to the Bureau of Educational Research for 1929-30. Two of these succeed Rhue E. Green and Miss Florence J. Morgan, who have resigned. Miss Morgan has been appointed Head Mistress of Tudor Hall, at Indianapolis.

D. H. Sutton holds a degree as Bachelor of Science in Education from Muskingum College and received his Master's degree from Ohio State University in August, 1929. He has also had teaching experience in several Ohio high schools.

Clifton W. Hall has taught in the Cleveland public schools. He has a Bachelor's degree from Denison University and a Master of Arts degree from Ohio State University. He has done graduate work at Harvard.

Harold W. Baker has been appointed to succeed Miss Morgan. He has a Bachelor of Arts degree from Oberlin College and has taught eight years at the West High School, Cleveland. He received a Master of Arts degree at Ohio State University.

Reuben Eliassen comes highly recommended by the President of Birmingham-Southern College, where he has been professor of education since 1925. He graduated from St. Olaf College, Northfield, Minnesota, and earned a Master of Arts degree from Columbia University. He has also done graduate work at the University of Minnesota and at the University of Chicago.

## Scientific Method

The course of lectures delivered by Truman L. Kelley at the Ohio State University under the auspices of the Graduate School and the Department of Psychology have appeared in a book bearing the title *Scientific Method*.[1] Five lectures are included. They carry the following titles: "Interrelationship between Method of Research and Field of Investigation"; "The Rôle of Judgment in 'Objective Measurements'"; "In What Units Shall We Measure

[1] Kelley, Truman Lee. *Scientific Method: Its Function in Research and in Education.* Columbus: Ohio State University Press, 1929. x + 195 pp.

Intelligence and Achievement?"; "The Bearing of Recent Scientific Development upon Problems of Education and Inheritance"; and "Mental Traits of Men of Science."

This is a hard book to review. A reviewer supposedly supplies the reader with a summary statement of the book's contents, indicates its best features, and offers any criticisms which appear to him to be valid. These five lectures of Professor Kelley's contain so much and are so excellent that a summary seems to be quite impossible. The reviewer has no adverse criticisms to offer.

In general, this book is a fine exposition of experimental research as the method of arriving at truth. The place and value of the dialectic method, the historical method, and the method of future estimation are not denied. Indeed they are indispensable to the effective study of many questions, but discovery and progress depend upon the revelation of facts through the method of experimentation.

The field of experimental research is as broad as it can operate in, and just as soon as it enters a field it drives out the historical and questionnaire methods, except as preliminary methods. There is no possibility that these will be driven from the face of the earth, but they have been driven from much of physics, chemistry, astronomy, and engineering, from considerable of geology, botany, zoology, psychology, and medicine, from a little of education, economics, sociology, and business, and from practically none of law, literature, and religion.[2]

The reviewer is a bit inclined to select Lecture V, "Mental Traits of Men of Science," as the best of five most excellent lectures. Perhaps this is because he read it last. None of the time which the reader may devote to this lecture will be considered wasted. Would that every reader of this Bulletin might discover anew here the dangers incident to reasoning by analogy which alone will leave him amply repaid for the time he may devote to the book. But it is all good. Read it for yourself and see.

R. L. MORTON
*Ohio University*

[2] *Ibid.*, pp. 27-28.

## The Social Sciences

The Investigation of History and Other Social Studies in the Schools, sponsored by the American Historical Association, is vested in a Commission on Direction. The members of the Commission on Direction are: Frank S. Ballou, Superintendent of Schools, Washington, D. C.; Charles A. Beard, New Milford, Connecticut; Isaiah Bowman, American Geographical Society; Ada Comstock, Radcliffe College; George S. Counts, Teachers College, Columbia University; Guy Stanton Ford, University of Minnesota; Evarts B. Greene, Columbia University; Ernest Horn, University of Iowa; Henry Johnson, Teachers College, Columbia University; W. E. Lingelbach, University of Pennsylvania; Leon C. Marshall, Johns Hopkins University; Charles E. Merriam, University of Chicago; Jesse H. Newlon, Lincoln School, New York City; Jesse F. Steiner, Tulane University; and A. C. Krey, *Chairman*, Univ. of Minnesota.

The Executive Committee for the present year includes: A. C. Krey, who is also serving as Director of the Investigation, Charles E. Merriam,

and Jesse H. Newlon. Funds were made available through a grant from the Carnegie Foundation in March, 1929, and active work was started.

Professor Edgar Dawson, of Hunter College, has assisted the Director in getting the work started. Special studies of an exploratory nature have been conducted by E. P. Smith, New York State Education Department, Bessie L. Pierce, University of Chicago, and Lena C. Van Bibber, State Normal School, Towson, Maryland.

For the current academic year the Investigation has obtained the assistance of Professor Truman L. Kelley, Stanford University, who has consented to serve as technical adviser on tests and measurements. W. G. Kimmel, formerly Supervisor of Social Studies, New York State Education Department, will serve as executive secretary of the staff.

The officers wish to express their gratitude to the many school administrators and teachers who have already generously co-operated. They wish also to announce their intention to invite many others to help in the activities of the Investigation during the current year. More adequate acknowledgment of assistance will be made at the annual meeting of the American Historical Association.

# Fines and Penalties in Ohio

D. H. SUTTON [1]

THE HISTORY of fines and penalties is older than civilization itself. The Pharaohs in Egypt sold the offenders of the royal will into slavery, Alexander the Great condemned them to serve in the army, Caesar forced them to take poison, Nero sentenced them to the galleys, Queen Elizabeth shipped them to America to be sold as bondsmen and slaves, Napoleon used them to build ships, while Peter the Great forced them to shave. These are only a few of the penalties exacted from those who offended the rulers, disobeyed a royal edict, broke the law, or failed to pay their debts.

This traditional method of gaining support is not a product of civilization in America, and it characteristically appears in a milder form there than in older civilizations.

Just as in other countries, the necessity for limiting the actions of certain individuals or enforcing their duties upon them has in our State led to the same old traditional methods of raising revenues to support public institutions. As a method of raising school revenues it made its debut into the laws of our State in 1827. Since then there have been listed on the statute books in Ohio one hundred separate and distinct fines and penalties which accrued to the support of the public schools. Twenty-nine of these have been outlawed or repealed, and seventy-one still remain as a source of financial support for public education (see Tables I and II).

Many of those penalties, now outlawed or repealed, seem amusing to us today. For example, harboring a drunken Indian or firing a cannon on a public street have lost a good deal of the original "punch."

[1] Research assistant, Bureau of Educational Research.

Since the fines and penalties are so numerous they are given in tabular form. When the statutes of Ohio were revised in 1880 all of the fines and penalties then in force were included. Most of those outlawed or repealed appeared in sections of law before that time. Table I contains all fines and penalties payable to the county auditor that still remain as a source of school revenue. Not all of the fines and penalties assessed are paid to the district in which the offense was committed or the crime punished. Twenty-eight of these fines assessed are payable to the State Treasurer for the use of the public schools. These are contained in Table II.

Of the one hundred fifty-two different and specific sources of school revenue that have been used since Ohio became a state one hundred of them have been fines and penalties. While the amount of money accruing to the schools from the assessment of these fines has never been a large amount during any one year, like other sources, they have served their purpose—to aid in public-school support.

TABLE I

FINES PAYABLE TO COUNTY TREASURER FOR USE OF PUBLIC SCHOOLS PASSED BEFORE 1888

| Statute | Section | Penalty for Which Fine Was Assessed |
|---|---|---|
| 1880 | 3479 | Avoiding toll on turn pikes |
| 1880 | 3970 | For not paying fine to proper authority |
| 1881 | 4033 | Failure of clerk to make census report |
| 1881 | 4201–04 | For allowing animals to run at large |
| 1881 | 4382 | Owning wharf boat without license |
| 1881 | 4401–02 | Peddling without a license |
| 1883 | 1504 | Failure of township clerk to make statement of oil wells |
| 1884 | 288 | Insurance companies violating law |
| 1884 | 1052 | Failure to pay dog tax |
| 1884 | 1279 | Failure to dispose of timber on school lands |
| 1884 | 1280 | Failure of officials to sell stolen property |
| 1884 | 1281 | Taking of timber from State lands |
| 1884 | 1375 | Failure of township trustees to serve |
| 1885 | 3639 | Board of education failing to perform duties |
| 1885 | 4027 | Keeping children from school |
| 1885 | 4038 | Failure of clerk to take school census |
| 1885 | 4045 | Failure of treasurer to make annual settlement |
| 1885 | 4061 | Failure of county auditor to make report |
| 1885 | 4063 | Failure of county clerks to make report |
| 1885 | 4088 | Failure of Institute Committee to make report |
| 1885 | 4089 | Failure of Institute Committee to submit financial statement |
| 1885 | 4215 | Permitting dogs to run at large |
| 1885 | 4216–17 | Unlawfully fishing in Lake Erie |
| 1886 | 4398–99 | Failure to issue peddler's license |
| 1886 | 4487 | Failure to keep county ditches open |
| 1886 | 6396 | Failure to furnish birth statistics |
| 1886 | 19 | Failure to fill sink holes in public places |
| 1886 | 1050–51 | Failure of county auditor to make state report |
| 1886 | 1524 | Failure of assessors to make out statistical report |
| 1886 | 1525 | Failure of a company to furnish taxation report |
| 1886 | 3226 | Failure of express companies to sell unclaimed goods |
| 1886 | 6877 | Malicious injury of public buildings |
| 1886 | 6831 | For burning school property |
| 1886 | 6835–36 | For stealing school property |
| 1886 | 6896 | Interrupting or disturbing a school |
| 1886 | 6896 | Board member disturbing a school in session |
| 1886 | 3973 | Failure of board of education to pay debts |
| 1886 | 3974 | Failure to attach legal title to signature |
| 1886 | 6975 | Board members accepting bribe |
| 1886 | 6984 | Failure to sell bonds when notified |
| 1886 | 2605 | Failure of auditor to make live stock report |
| 1887 | 9405 | Failure of corporation to comply with state laws |
| 1887 | 9591 | Failure of any company to pay forfeiture |

TABLE II

FINES PAYABLE TO THE STATE TREASURER FOR USE OF THE PUBLIC SCHOOLS ENACTED SINCE 1887

| Volume[a] | Page | Section | Penalty for Which Fines Are Assessed |
|---|---|---|---|
| 80 | 114 | 11,085 | Appropriation of school land by public corporation |
| 98 | 124 | 12,417 | Hazing |
| 98 | 124 | 12,418 | Permitting hazing, by school authorities |
| 90 | 353 | 12,419 | Mayhem |
| 62 | 139 | 12,574 | Obstructing aisles in a public building |
| 91 | 338 | 12,873 | Embezzlement of public money |
| 70 | 214 | 12,883 | Member of board of education accepting pay |
| 109 | 253 | 12,900 | Neglect to instruct in fire drills |
| 109 | 253 | 12,901 | Failure to teach fire prevention |
| 99 | 293 | 12,906 | Pupils joining a fraternity |
| 99 | 253 | 12,907 | Failure of principal to give notice of fraternity |
| 99 | 253 | 12,908 | Boards of education permitting fraternities |
| 70 | 195 | 12,929 | False enumeration |
| 86 | 207 | 12,931 | Offering bribe for recommending textbook |
| 86 | 207 | 12,932 | Employing relative as teacher |
| 98 | 228 | 12,939 | Giving information on examination questions |
| 86 | 334 | 12,976 | Employing minors |
| 86 | 336 | 12,977 | Officer of a corporation employing minors |
| 90 | 287 | 12,979 | Failure to issue working certificates |
| 90 | 287 | 12,980 | School officer failing to perform duty |
| 86 | 338 | 12,983 | Violation of compulsory attendance law |
| 86 | 338 | 12,984 | Second violation of compulsory attendance law |
| 90 | 290 | 12,987 | False statement as to age |
| 90 | 291 | 12,988 | False oath as to being twenty-one years old |
| 99 | 30 | 12,999 | Hindering attendance at part-time schools |
| 109 | 401 | 13,007–8 | False age-statement on part of officials |
| 109 | 401 | 13,009 | Permitting minors or women to work |
| 109 | 402 | 13,010 | Continued employment after notice of violation |

[a] Means Ohio laws or state statutes.

## Books to Read

### TEACHERS

MCGUFFEY, VERNE. *Differences in the Activities of Teachers in Rural One-Teacher Schools and of Grade Teachers in Cities.* New York: Teachers College, Columbia University, 1929. vi + 65 pp. (Teachers College, Columbia University, Contributions to Education, No. 346)

Mr. McGuffey has collected 112 activities of teachers in connection with which there are most likely to be differences in one-room rural schools and graded schools. These activities were collected from teachers' diaries, from the Commonwealth Study, from graduate students, and from county superintendents. They were then checked by approximately five hundred teachers in one-teacher schools and two hundred grade teachers to discover differences in performance. They were also checked by excellent teachers in one-teacher schools and by poor teachers in one-teacher schools. Comparison is made between the prevalence of the duties in one-teacher schools in five different states. The study is of interest to those who are concerned with the construction of curricula for rural-school teachers.

W. W. CHARTERS

ALMACK, JOHN C., AND LANG, ALBERT R. *The Beginning Teacher.* Boston: Houghton Mifflin Company, 1928. xvii + 478 pp.

If a young person, just starting out on a life excursion of teaching, could see the value of such a book as this, she would be saved many unhappy moments. *The Beginning Teacher* is designed, as stated by the authors, to "serve as a textbook in teaching courses in high schools and normal schools, and to supply material for use in teacher's state reading circles."

The book goes so thoroughly into detail regarding both management and technique that it makes a valuable handbook to act as close companion to a teacher in her first year or two in the classroom. It would also be helpful, as a check on her teaching, for the more experienced teacher.

The contents of the book cover the entire field of teaching. In "Preliminaries to Teach-

ing" the work of the teacher, the teacher's equipment, and securing the position are discussed. In "Organization and Management" such matters as the first day of school, taking care of the discipline problem, keeping up attendance, are reviewed. In the third part of the book, "Methods of Teaching," every subject —reading, writing, social science, etc.—is discussed in detail. It is in every way a comprehensive survey of the teaching field.

The point of view is modern. In social-science teaching the project method is stressed; in natural science selection of specimens close at hand, and the use of experiences that fit in with the children's lives are advocated; and so with the other subjects. Textbooks are to be used chiefly for guidance. At the end of each chapter, a list of references, and a set of questions is given. In every way this seems to be a book worthy of use by the young teacher taking her first uncertain steps in teaching young children.

EDITH MURRAY PECK

MORRIS, ELIZABETH HUNT. *Personal Traits and Success in Teaching.* New York: Teachers College, Columbia University, 1929. 75 pp. (Teachers College, Columbia University, Contributions to Education, No. 342)

This study is of interest because it is concerned with developing a measure of other than intellectual qualities which contribute significantly to the success of high-school teachers. Studies are made of the seven relationships: academic averages, health grades, intelligence-test scores, practice-teaching grades, public-opinion test scores, "sympathy test" scores, trait-index scores. The study is of significance to those who are interested in predicting success in teaching because of its techniques. The enumeration and elaboration of ten possible trait indices are in themselves quite worth while.

W. W. CHARTERS

COALE, WILLIS BRANSON. *The Professional Needs of Teachers of English.* New York: Teachers College, Columbia University, 1928. 85 pp. (Teachers College, Columbia University, Contributions to Education, No. 334)

Dr. Coale sets about his investigation in a thoroughly sound manner, and, chiefly by questionnaire methods, secures data of distinct significance to English teachers and to teacher-training institutions. So far as the reviewer knows, this book contains not only the most complete material on the subject but also the most suggestive. At the outset Dr. Coale summarized what had been written concerning the needed equipment of high-school—junior and senior—English teachers. He then tabulated the generally accepted most important objectives of English teaching. This done he secured from about three hundred selected English teachers opinions as to a number of important items such as their most useful collegiate training; their judgment of the most essential equipment for their profession; their evaluation of a long series of English-teaching objectives; and their judgment relative to the collegiate provision for their needs. Dr. Coale finds that there is positive agreement between the judgments of teachers in service on these matters and the opinions of recognized writers on the subject. On the basis of the findings a variable course of study for students preparing to teach English is proposed. This course prescribes work which will cover about one-third of the student's four years in college. Parallel and complementary types of work are then suggested.

As was said at the outset the investigation was decidedly worth making and its results are valuable and suggestive. However, in researches of this type one cannot help feeling that too great emphasis has been placed upon determining *what is* and perpetuating it—with improvements, to be sure—and too little weight given to considering *what ought to be* and searching for means to bring it about. Dr. Coale seems to recognize this fact in his proposals for further studies which he believes should be made.

HOWARD FRANCIS SEELY

## SUBJECT-MATTER

CRAWFORD, C. C., AND MCDONALD, LOIS P. *Modern Methods in Teaching Geography.* Boston: Houghton Mifflin Company, 1929. xi + 306 pp.

An uninspired and encyclopedic collection of well-known facts is found in this book by Crawford and McDonald. Some suggestions are made which are helpful but most are obvious to an inspired teacher. The main virtue of the book is that it attempts practical helps instead of presenting theories. A dull book teaching the characteristics of elephants while outside the classroom the circus is parading by.

RODERICK PEATTIE

STRUCK, F. THEODORE. *Methods and Teaching Problems in Industrial Education.* New York: John Wiley and Sons, 1929. xi + 214 pp.

Under the title *Methods and Teaching Problems in Industrial Education,* the author includes some philosophy and more of organization, administration, supervision, and student and teacher traits. The book is a somewhat miscellaneous discussion of pertinent points and topics in "industrial education," rather than a presentation of any defined phase of the subject. For the general educator or lay reader who knows little of the problems and procedures in "industrial education" the volume should prove help-

ful; but for the typical teacher in this field, seeking refinement of techniques, based upon sound psychological principles, its value is less apparent.

Quite constructively, the author has recognized the common values in industrial-arts education and vocational-industrial education, consonant with the diversity of their aims. Whatever he has done to make clear the likeness as well as the differences of these cognate fields is so much clear gain. Both have been materially weakened by the extreme tendencies of the past either to identify or sharply to dissociate them. It is professionally hopeful to find the author—and the editor—of this volume recognizing their proper relationship.

W. H. STONE

MEYER, HAROLD D., AND EDDLEMAN, SAMUEL MCKEE. *Financing Extra Curricular Activities*. New York: A. S. Barnes and Company, 1929. xii + 132 pp.

This book is the first of a series to be called the "Extra Curricular Library," edited by Harold D. Meyer of the University of North Carolina. The question of financing extra-curricular activities has been studied through a questionnaire sent to principals of outstanding high schools in the United States. Three major topics of raising money, distributing money to various activity groups, and handling funds raised, are discussed from the point of view both of current practices, and what should constitute best practices. Samples of various forms used throughout the country are illustrated, and in addition, four appendices illustrate the student-activity ticket used in the high school at Paola, Kansas, and accounting systems used in high schools at Ypsilanti, Michigan; Massilon, Ohio; and Huntington, West Virginia. A comprehensive bibliography is given throughout the reading and at the end of the volume.

W. K. WILSON

C. A. POLLOCK, AND OTHERS. *The Elementary Yearbook*. Columbus, Ohio: Franklin Kraft Press, 1928. 99 pp.

Some of the interesting features of the work of the Reeb Elementary School of Columbus, Ohio, during the last three years have been summarized by C. A. Pollock, the principal and some of the teachers of the school. It has interesting sections on such topics as "Common Sense in Lesson Planning," "Checking the Results of Spelling Instruction," "The Picture-Story Reading Method for Beginners," "Music Appreciation," "Visual Aids in Teaching," "Our Cafeteria," "Pupil Participation in School Activities," and "Thrift."

The book is an illustration of what an elementary school can do when it has an intelligent and co-operative principal and corps of teachers in charge—in fact, the book is a revelation. It shows that a school does not need to be a mere "educational factory," but that it can be a place where pupils are busily and efficiently at work on interesting and meritorious enterprises. It proves also that classroom teachers have imaginations when they are permitted to exercise them. We should have more elementary schools like the one here described, and there should be more summaries of the work of such schools. This book, I predict, will be the forerunner of similar books from other schools.

W. G. REEDER

THORNDIKE, EDWARD L., AND WOHLFARTH, JULIA H. *Growth in Spelling*. Yonkers-on-Hudson, New York: World Book Company, 1929. Book I, viii + 120 pp., Book II, vi + 153 pp.

The authors state that they "have applied the psychology of learning and the facts of school life to the learning of spelling." Words have been selected from available counts and arrangements made in terms of pupil need, word difficulty, and thought relation. Much emphasis has been placed on word building and attention to hard spots.

E. J. ASHBAUGH

*The National Council of Teachers of Mathematics, Fourth Yearbook*. New York: Teachers College, Columbia University, 1929. x+186 pp.

The significant changes and trend in the teaching of mathematics throughout the world since 1910 are summarized in this book. Practically all of the countries covered by this survey show trends away from a traditional mathematics with the trends in the same direction for all the countries.

The first outstanding trend is that toward a practical mathematics—a computation and measurement to interpret life about us—and to use estimation and approximate calculation. The second trend is to discourage the breaking up of secondary mathematics into such formal groupings as arithmetic, algebra, and geometry, replacing these formal groupings by a gradual development from arithmetic into a generalized arithmetic which becomes an algebra and including in both an informal or intuitive geometry. The third development is to teach equations as functional relationships. Chief among the methods of doing this is one involving graphs. In some countries the graphics and functional relationships are not introduced until algebra is taken up. In others, the notion of functional relationship is taught from the early grades up through the secondary schools. The last out-

standing movement is the development and use of objective-test methods in mathematics. This has been developed to the greatest extent in the United States.

The last chapter "Significant Changes And Trends in the Teaching of Mathematics in the United States" by Reeve is one that should be carefully read not only by teachers of mathematics but by any one interested in elementary and secondary education.

HAROLD A. EDGERTON.

## HIGHER EDUCATION

MORRIS, JOHN T. *Considerations in Establishing a Junior College.* New York: Teachers College, Columbia University, 1929. 63 pp. (Teachers College, Columbia University, Contributions to Education, No. 343)

A special study has been made relative to the establishment of a junior college at Mount Pleasant Classical and Scientific Institute in Mount Pleasant, Pennsylvania. The investigation deals with the economic conditions, the social-racial features, and the extent to which the community is supporting higher education. The requirements and purposes of the junior college are first set down, together with an analysis of the particular relationships which these bear to higher education in Pennsylvania. Population trends and industrial conditions are analyzed. One of the important chapters of the report deals with the trends in high-school and college enrollment in that state. Recommendations are offered in the final chapter relative to the specific problem.

RHUE E. GREEN

GOOD, CARTER V. *Teaching in College and University.* Baltimore: Warwick and York, 1929. xi + 557 pp.

The rapidly accumulating body of literature bearing on college problems and the reorganizations and changes that have taken place in this field in recent years make highly desirable a careful biographical survey of the field of higher education. Such is the nature of the valuable study prepared by Dr. Good. The author has made a careful examination and evaluation of all the educational literature in this field during the last decade.

The first two chapters serve as an orientation to the student in the field of higher education. Much valuable source material is given together with a brief survey of the present status of colleges, teachers, and students. The remaining chapters deal with the following important problems: objectives and standards, curriculum, psychology of learning, instruction, measurement and guidance. The last chapter summarizes recent attempts to improve instruction in higher education. There is also an appendix containing bibliographies of special method, the curriculum, and other problems in twelve subject-matter fields.

*Teaching in College and University* is an attractive volume, readable and well organized. The bibliographies are comprehensive and complete. The book is an invaluable reference work, not only for the occasional reader, but also for the research worker in this field.

W. F. SANDERS

## MISCELLANY

THORNDIKE, EDWARD L.; BREGMAN, ELSIE O.; TILTON, J. WARREN; AND WOODYARD, ELLA. *Adult Learning.* New York: Macmillan Company, 1928. x + 323 pp.

Thorndike, in his *Adult Learning*, discusses the old question of whether the learning of infancy, childhood, and adolescence has, by virtue of original nature, any advantage over the learning of adults between the ages of twenty to forty. The results of his experiments flatly contradict the general belief that children learn more easily than adults. As Thorndike himself reports, his facts show that adults can learn rather easily and rapidly and probably could learn much more than they do. This is true not only of adults of superior intellect but also of adults of inferior intellect. In both cases the curve of ability to learn from twenty-two to forty-two shows a very slow decline.

The book has a decided significance for adult education. Adults can no longer defend themselves by saying that they cannot learn as easily as children. Thorndike states, "They could learn much more than they do." Then why don't they? There are probably several reasons: (1) adults have less time for learning because of economic pressure; (2) their desire to learn is not strong enough; (3) very little social pressure is brought to bear on adults while it bears rather heavily on children.

The question of adult learning bears directly upon the progress of our civilization. If adults do not learn or learn only with difficulty, this means lack of flexibility and a static civilization. On the other hand, the facts of *Adult Learning* should encourage industry to face changes in machinery and processes.

FLORENCE J. MORGAN

FORBES, CLARENCE A. *Greek Physical Education.*. New York: Century Company, 1929. vi + 300 pp.

In recent decades a large body of sources, especially inscriptions and papyri, which bear upon ancient life and education have been discovered. This new book on Greek physical education, interpreting these materials, definitely settles many questions which have long been debated. Especially do the inscriptions and

papyri show the wide distribution of Greek physical education in the Hellenistic world and period. The author says: "If we may paraphrase a familiar saying: 'When Greek met Greek, they founded a gymnasium!'" The work embodies also a critical handling of the conclusions of a long line of preceding scholars who have like the author of this work dealt with the original texts.

Following the introduction there are chapters dealing with the Spartan Aoge, Crete, Athens before 335 B. C., the Philosophers, the Athenian Ephebia, and the Greek World at large. The book is well-written and conservatively argued but owing to subject and materials it is not entirely easy reading. It is intended for students and will be serviceable to them; and it, together with Kenneth Freeman's *Schools of Hellas*, will provide a good introduction to Greek education. It contains a glossary, an extensive bibliography and an index. In form it is at one with "The Century Education Series" to which it belongs.

H. G. GOOD

WHITEHEAD, A. N. *The Aims of Education and Other Essays.* New York: Macmillan Company, 1929. vi + 247 pp.

A mathematician and teacher who has turned philosopher here discusses education "on its intellectual side." The book consists of ten essays, all but one of which have been reprinted from other sources; consequently it offers no new theories with which the disciples of Alfred North Whitehead are not already familiar. The essays do, however, make a splendid exposition of the ideas which have marked the author as a great thinker and a liberal educator.

"You may not divide the seamless coat of learning." That is the central thesis which runs through the book and which is demonstrated most clearly in the three chapters on the classics in education, the mathematics curriculum, and the place of technical education. Mr. Whitehead insists that the educated man must possess power of thought, power of action, and the imaginative initiative of art—all three.

Three of the essays are distinctly the mathematician's treatment of "The Organization of Thought," "The Anatomy of Some Scientific Ideas," and "Space, Time, and Relativity."

DAISY B. GRENZOW

PILLSBURY, W. B. *The History of Psychology.* New York: W. W. Norton and Company, 1929. x + 326 pp.

*The History of Psychology* by Professor Pillsbury, who for long years has been at the University of Michigan, is a summary of what the leading men of all ages have thought about "man's acts and his thinking." Professor Pillsbury takes the view that psychology has been primarily made by individual men so he presents the essence of the systems of psychology as gleaned from Demokritos to the present time. Thus the book considers what individual leaders have contributed in fact and theory to our present day knowledge of man's behavior and inner life.

These summaries are clearly written and are precise and interesting but there is a lack of connection between the various men. There is not enough said about how one man influenced another, and how various "schools" originated. An interesting feature is the brief biographical sketch of each man which precedes his contribution to psychology. In modern psychology the following schools are sketched, and the leading men of each given: (1) the structuralist school, (2) the functionalist school, (3) the behavioristic school, (4) the hormic school, (5) the Gestalt school, and (6) the understanding psychology.

Professor Pillsbury is the historian in this volume and rarely criticises. The book suffers, by necessity of the subject and range covered, in being so brief at times that it appears merely to catalogue, but on the whole it is a valuable book for the student of psychology and particularly for the intelligent reader who is not technically trained in the literature of the field.

ROBERT H. BRUCE

DEWEY, JOHN. *Experience and Nature.* New York: W. W. Norton, 1929. ix + 443 pp.

This is a new edition of the work published in 1925, with the first chapter completely rewritten and minor corrections made throughout the volume. As the spectator of all time and all existence the philosopher must sooner or later give his view of the ultimate background of human life. Dewey has been so deeply concerned with distinctly human problems that it has not always seemed clear just what his metaphysical position was. This work comes nearer to an answer to this question.

In his metaphysics he is a "Naturalist." But this term must not be taken as equivalent to "Materialist." Materialism is non-humanistic and finally pessimistic. Dewey is neither. The problem of life is the creation of value, and for human beings this means human value. Nature offers the raw material and the instruments for this creation. Nature is the mother of us all, and in her bosom we are nurtured. However, this does not warrant anthropomorphism, even of an idealisitic sort. Nature can become human, but it has not become merely that. On systematic classification in terms of traditional schools Dewey is very reserved.

But the human has its place in the scheme of things, and we must concern ourselves with

the human knowing processes, the means of communication, the forms of social solidarity, as instruments in the creation of values. In the practical situation there seem to be two factors at work, in interplay upon each other, the individual organism and its environment, or "Experience" and "Nature." These are the poles of the life situation. To cope with nature the experiential element must formulate an adequate method in science and philosophy. It must learn to face facts squarely, to gather up the contributions of history; but must learn also the art of constant readjustment. Life is precarious in even its greatest degree of stability. It must perfect its instruments and clarify its ends, which are essentially artistic and esthetic, the intrinsic values of life. To many the statement of how this occurs will seem the most significant of Dewey's works.

ALBERT E. AVEY

MENDENHALL, EDGAR. *The City School Board Member and His Task.* Pittsburg, Kansas: College Inn Book Store, 1929. 104 pp.

Mr. Mendenhall has designed this book to give the school-board member concise information as to his proper functions and to give this information in convenient and convincing manner. Since most school-board members come to the office with relatively little training for it, and are too busy to study elaborate treatises on the subject afterward this book should be of definite value. The sources of material are frankly named and include the opinions of school-board members themselves, the superintendent, and the college professor of administration. The book will be found useful to school boards of small as well as large cities and to school superintendents.

H. H. DAVIS

COCKS, A. W. *The Pedagogical Value of the True False Examination.* Baltimore: Warwick and York, 1929. x + 131 pp.

A survey of the literature shows that the true-false test in common with other forms of new type examinations is superior to the old form or essay type of examination. When comparing in terms of equal working times, the true-false test is as reliable as any objective examination. It is perhaps more difficult than any other type with the possible exception of the recall test. In a given working time, the true-false test provides a wider range of subject-matter. The chief contribution of this monograph is its suggestion of the objective examinations as instruments of instruction. The instructional value is best obtained by having the pupils correct the test papers immediately after testing. In Mr. Cocks' first experiment, in a physics class, he found the true-false test 50 percent better than the multiple-choice test as a teaching device. He also found that the false statements are of about the same instructional value as the true statements. Examinations have, in addition to their values as measuring devices and instructional devices, a value as a motivator.

It is concluded that the motivation value of the true-false test is probably greater than any other type of examination. This he attributes to the natural desire of pupils to distinguish the true from the false. This motivation value is increased if the test is followed by the correction of the papers by the pupils themselves. The true-false test seems to be of particular value to dull pupils as an instructional device.

It would probably be well for the experiments suggested in this monograph to be repeated using larger populations and a wider range of subject-matter than were available at the time the experimental work was done. It is also suggested that the statistical treatment be considerably refined and averages of attainment compared in terms of some standard measure of variability. It is quite possible that Mr. Cocks would have come to some other conclusion had he used better statistical treatment.

HAROLD A. EDGERTON

HOLLINGWORTH, LETA S. *The Psychology of the Adolescent.* New York: D. Appleton and Company, 1928. xii + 227 pp.

Parents of adolescent sons and daughters will no doubt welcome this interesting study of the adolescent age as enthusiastically as will the student of psychology. The two introductory chapters deal with the physiological characteristics of adolescence and the primitive "pubic ceremonies." The remainder of the book presents in a most sympathetic and readable style the socio-psychological problems of the adolescent age.

There is an excellent chapter entitled "Psychological Weaning," which all parents ought to read. The discussion concerning the problems of vocational guidance, mating, and development of the personality are helpful. In the section entitled "Additional Readings," are listed not only scientific and educational readings but also fiction and biography related to the subject-matter of the various chapters.

AMALIE K. NELSON

GESELL, ARNOLD. *Infancy and Human Growth.* New York: Macmillan Company, 1928. xvii + 418 pp.

The first part of this book describes the methods for the observation and photography of infant development used by Dr. Gesell and his associates in the Yale Psycho-Clinic—a technique which permitted observation of the infant by a

person himself invisible to the child. A comparative method of observation such that infants of various ages were observed simultaneously was also used. From this there resulted a graded schedule of norms of infant behavior for the ages from one month to thirty months. A series of photographic studies of infant development is included.

The second section of the book includes various genetic studies of infant behavior such as drawing and its relation to development, glandular and nutritional factors, and retarded development. The final section considers the more or less theoretical aspects of infancy such as growth as a social concept and the clinical prediction of mental growth.

This is the first intensive study of a large number of children below the nursery-school age and fills that gap which exists between the scientific studies of the newborn and those of nursery-school age.

AMALIE K. NELSON

FISHER, DOROTHY CANFIELD. *Why Stop Learning?* New York: Harcourt, Brace and Company, 1927. 301 pp.

Here, it seems, is a strange contradiction! One reads everything from the pen of Dorothy Canfield; but regarding *Why Stop Learning?*, most of the readers of the Bulletin will be inclined to say: "Doubtless a good book, but I don't need the argument. I know there is no reason to stop learning and I shall never stop." There is the mistake.

This book is not an argument—at least not a logical argument with formal premises and conclusions, not the kind of argument with formal premises and conclusions, not the kind of argument that by sheer logic drives an unwelcome bolt through one's mental mechanisms, clinches it on the other side, and exclaims triumphantly: Now let us see you escape! Rather has the author, like Browning's John

"—patient, stated much.....
Forgotten or misdelivered, and let work."

At least nine of the twelve chapters in the book are definite pieces of research into the origin and development of the various movements considered. Here are facts—not dry facts but rich, juicy, significant facts. For example, do you know that the correspondence schools of the country, which range all the way from real educators to pure fakes, take in seventy million dollars yearly in fees?

Do you know that in 1847 the city of Paris presented the city of Boston with fifty books and that the city of Boston had no place to put them? Women's clubs have existed from 1866 to date, a short period, but what a growth and of what significance for our national life! Chautauquas, university extension, museums, workers' education, and parents as students are discussed in other chapters which one reads with the same fascination that he reads anything by Mrs. Fisher. And as one reads, one discovers that these are all expressions of the determination of a large part of our population not to stop learning. Adult education was born years ago. Recently it has become conscious of itself. From now on it will be an autonomous force in the evolution of man and society.

Our author does not fail to point out that in a century or so—it takes about a century for a new idea to reach maturity and bear fruit—we may expect this movement for the education of adults to have a profound effect upon the education of children. Once it is appreciated that there will be opportunity to learn some things after graduation from school, it will not be thought so necessary to cram the undergraduate's undeveloped head with all the facts he by any possibility will ever need during a long life.

HENRY H. GODDARD

JOHNSON, HARRIET M. *Children in the Nursery School.* New York: John Day Company, 1928. xx + 325 pp.

The material for this book is drawn from observations made in the Nursery School of the Bureau of Educational Experiments of which the author is the director. The facts of growth which are considered are primarily those related to activities of children in the nursery-school environment. The health program, although considered essential, is not given the prominence accorded it in some nursery-school reports.

The picture presented is that of children ranging in age from eighteen months to three years, leading busy, happy lives. Interesting descriptions are given of the day's schedule, of the provisions which are made to encourage the physical and social development of the children, and of the method of keeping records. The problem of age grouping is considered too, as advisable in the nursery school because of the differentiation in interest and development at the various age levels.

The aim of nursery-school education is presented not primarily as training for future excellence, although this may be its sequel, but as providing an environment which will help children of nursery age to lead productive lives. The situations to which they are learning to adjust are real life situations.

AMALIE K. NELSON

EDITOR'S NOTE: The last four reviews were prepared for the special number "Adult Education" issued May 15 of this year, but were not used at the time because of lack of space.

## New Tests

R. W. TYLER

The Research Service Company, 4259 South Van Buren Place, Los Angeles, California, announces the publication of two forms of the DeVault Primary Reading Tests, prepared by Nellie DeVault of the Los Angeles schools. The test measures word-recognition, comprehension of simple sentences, ability to follow directions, and the interpretation of short paragraphs. Tentative results indicate that it corresponds fairly well with the results of other widely used reading tests. The reliability reported is about .85 which is too low for the diagnosis of individual pupils when only one form of the test is used. It should be useful for group surveys or for individual purposes when combined with other measures.

Supervisors and supervisory officers have long felt the need for some definite check of their activities. In attempting to meet this need E. J. Brown, of the Kansas State Teachers College, Emporia, has prepared A Self-Rating Scale for Supervisors, Supervisory Principals and Helping Teachers, which is published by the Bruce Publishing Company, Milwaukee, Wisconsin. The scale is made up of Part I, containing fifty personal and social qualities to be rated, and Part II listing fifty methods and principles of supervision to be checked. The supervisory officer is asked to rate himself on each of these one hundred qualities by using a five-point scale running from excellent to poor. The one hundred qualities and activities obtained by analyzing widely used textbooks in supervision are chiefly those listed in all the textbooks. However, the results of *The Commonwealth Teacher Training Study* indicate that such textbooks omit many essential traits and activities. Furthermore, the reduction of the description of these qualities to one hundred items means that many of the trait-actions which supervisors should perform are not specifically listed. This would make it difficult for the supervisor to rate himself accurately. On the other hand, experiments have shown that a well-constructed rating scale will permit the average person to locate about half of his weak points which need improvement. Hence the scale though incomplete and somewhat vaguely defined should be helpful.

The Columbia Research Bureau Test prepared by E. R. Jette, S. R. Powers, and Ben D. Wood is published by the World Book Company, Yonkers, New York. The test, planned for high-school and college students, covers largely informational material obtained from widely used textbooks although some skills in writing chemical equations and in solving quantitative problems are required. The interpretation of everyday chemical phenomena and the application of scientific method to new problems are not directly tested. The two forms of the test now available have a reliability of about .87. Hence, one form cannot be used alone for individual diagnosis or grading. The test is sufficiently reliable, however, for survey purposes, or it may be used to supplement other measures for grading or diagnosing individual pupils. Tentative norms are provided.